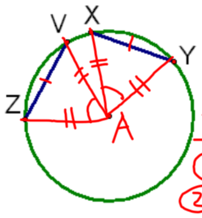
10-3 Arcs and Chords

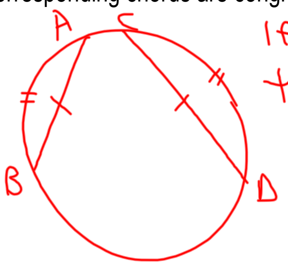


Given: $\overline{XY} \cong \overline{VZ}$

Prove: $\overset{\frown}{XY} \cong \overset{\frown}{VZ}$

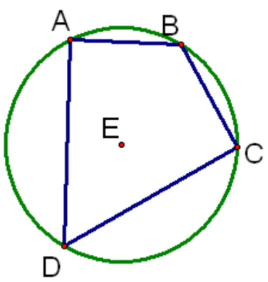
S.	R.
1	1 Given
2 $\overline{AZ} \cong \overline{AV} \cong \overline{AX} \cong \overline{AY}$	2 All radii in a ⊙ are ≅
3 $\triangle ZAV \cong \triangle XAY$	3 SSS
4 $\angle ZAV \cong \angle XAY$	4 CPCTC
5 $m\angle ZAV = m\overset{\frown}{ZV}$, $m\angle XAY = m\overset{\frown}{XY}$	5 Central ∠s = their intercepted arcs
6 $\overset{\frown}{XY} \cong \overset{\frown}{ZV}$	6 Subst.

Theorem 10.2--In a circle or in congruent circles, 2 minor arcs are congruent iff their corresponding chords are congruent



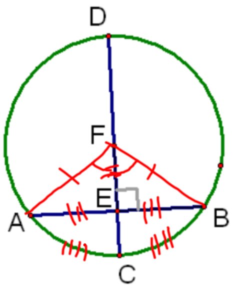
If $\overline{AB} \cong \overline{CD}$ then $\overset{\frown}{AB} \cong \overset{\frown}{CD}$

& the converse



ABCD is in ⊙E

⊙E is about the polygon

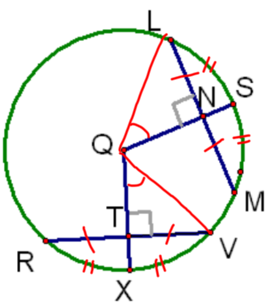


Given: $\overline{AB} \perp \overline{CD}$

Prove: $\overline{AE} \cong \overline{EB}$

(radius)

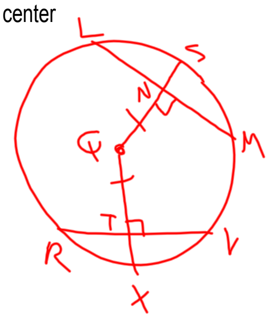
Theorem 10-3 In a circle, if the diameter is perpendicular to a chord, it bisects the chord and its arc.



Given: $\overline{LM} \perp \overline{QS}$
$\overline{LM} \cong \overline{RV}$
$\overline{QT} \perp \overline{RV}$

Prove: $\overline{QN} \cong \overline{QT}$

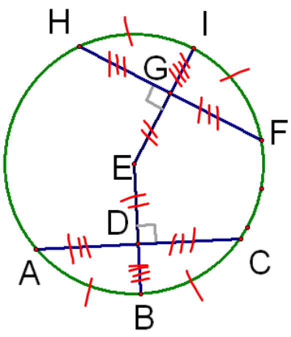
Theorem 10.4--In a circle, or in congruent circles, 2 chords are congruent iff they are equidistant from the center



If $\overline{QN} \cong \overline{QT}$

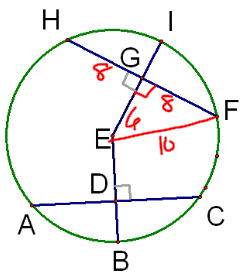
then $\overline{LM} \cong \overline{RV}$

& converse



Given: $\overline{AC} \cong \cancel{\overline{DF}}$ HF

What can you conclude?



Suppose HF = 16
GE = 6

Circumference = 20π

$c^2 = 6^2 + 8^2$

$36 + 64$

$c^2 = 100$

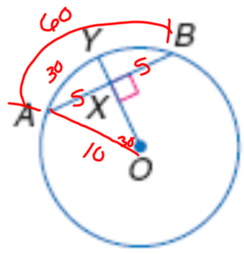
$c = 10$

*Add radius to create a rt. △

Circle O has a radius of 10, $AB = 10$, and $m\widehat{AB} = 60$. Find each measure.

5. $m\widehat{AY}$ 30
6. AX 5
7. OX = $5\sqrt{3}$

30	60	90
5	$5\sqrt{3}$	10



Exercises 5–7

In ⊙P, $PD = 10$, $PQ = 10$, and $QE = 20$. Find each measure.

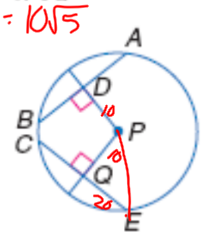
8. AB 40
9. PE = $10\sqrt{5}$

$c^2 = 10^2 + 20^2$

$100 + 400$

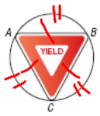
$c^2 = 500$

$10\sqrt{5}$



Exercises 8–9

Application 10. **TRAFFIC SIGNS** A yield sign is an equilateral triangle. Find the measure of each arc of the circle circumscribed about the yield sign.



$3\overline{)360}$

120°

HW
p540
11-34